

Selma Sharaf

Summer 2021 Research Associate Intern

Sustainable Energy Advantage, LLC

My name is Selma Sharaf, and I am a rising senior at MIT majoring in environmental engineering and minoring in management. I have been interning at SEA for 12 weeks (since June), and I have greatly enjoyed my experience.

My first week at SEA, I joined the other new hires in a series of meetings with various teams across the company. I appreciated this opportunity to interact with aspects of SEA's work that I may not have otherwise been exposed to, and this introduction helped contextualize the projects that I worked on for the remainder of the summer. In addition to the orientation sessions, there were many other opportunities for learning, such as webinars and conferences that I felt fortunate to attend.

One of the projects that I worked on focused on green hydrogen, which is hydrogen fuel produced from electrolysis powered by renewable energy. This is a relatively new area, and I had the opportunity to be part of a team (along with Eric, Erin, and Yasin) working with Bob to help shape SEA's approach to the topic. I conducted research on electrolyzer costs and hydrogen production modeling. As a group, we developed flow charts for hydrogen production and use. I then helped explore the applicability of NREL's H2A model to green hydrogen projects in the Northeast (as well as how to pitch this adjusted model to clients!).

Another one of my major projects centered around electric vehicles. During my first or second week at SEA, Jim asked me to research electric vehicle incentives in the Northeast for light-duty vehicles, medium and heavy-duty vehicles, and electric vehicle supply equipment (EVSE). We met with Tom, who suggested that we further develop that work and convert it into a primer and/or webinar. Over the course of the summer, I worked with Jim on developing a slide deck focused on electric vehicle markets, policies, and outlook in the Northeast, a portion of which we adapted into a "Brown Bag Lunch" and presented to everyone during my last week at SEA. These slides will likely be sold in SEA's web store and presented as a webinar in the fall. This project was a mix of qualitative and quantitative work—I had the opportunity to use Excel to model the incentives in each state for various vehicle models and EVSE types, to help forecast electric vehicle costs, and to develop other relevant figures. Throughout this process, Jim met with me a couple of times each week to provide feedback and answer any questions that I had.

I also spent a few weeks helping Jim and Eric refine SEA's assumptions for electric vehicle adoption and building electrification forecasts as part of the ELF model. We conducted research on other forecasts and used Excel to compare these, ultimately developing a list of recommendations for the NY-REMO team.

Finally, I worked on a variety of smaller tasks as they came up, such as identifying a company with electricity forward pricing data for a client project and corresponding with them, as well as helping with SEA's transfer of Eyes & Ears articles to the new website.

I came into this internship with a sustainable engineering/consulting background, but no experience with utilities or renewable markets in the Northeast. I was directly immersed in the terminology and concepts as soon as I joined, and I learned a lot. I found that universal skills such as writing, presenting, using Excel, and working independently as well as with others were all useful.

Overall, I had a great experience during my summer internship at SEA— everyone was kind, friendly, and team-oriented. My supervisor, Eric, constantly prioritized my learning and was a wonderful mentor. I was able to contribute to real projects, and I gained a lot of new knowledge. SEA has a focus on excellence and producing high-quality work for clients, and it was exciting to work at the unique intersection of clean energy, economic market analysis, and policy. I would highly encourage anyone else interested in this area to apply!